



INTRODUCTION TO AIRSPACE CONTROL

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The complexity of today's airspace environment grows with each advance in technology. Clearly defined airspace control concepts, forces, and capabilities help identify how best to use them for commanders at the strategic, operational, and tactical levels of military operations. The growth of military integrated air defense systems and the advent of cruise missiles and [unmanned aircraft systems](#) (UAS) continue to complicate theater airspace control requirements. Increasing multinational operations with partner and allied nations will add complications to airspace control in order to [attain interoperability](#) for more complex chains of command, communications, sensor and weapons interfaces, and planning. In addition to military users, current and future operations can expect a multitude of other air-intense operations either near or within a joint operations area (JOA). In such operations, civilian users, nongovernmental organizations, and relief agencies may require the use of combat zone airspace to conduct operations. Complicating matters, indirect fire systems (e.g., artillery), are recognized airspace users and today range higher, farther, and with greater volume of fire than ever before. These increased user demands require an integrated airspace control system to enable flight safety and prevent friendly fire incidents and unintended engagements against civil and neutral aircraft while enabling mission accomplishment and minimizing risk.

[Airspace control](#) is defined as "capabilities and procedures used to increase operational effectiveness by promoting the safe, efficient, and flexible use of airspace ([Joint Publication \[JP\] 3-52, Joint Airspace Control](#))." Properly employed, airspace control maximizes the effectiveness of combat operations without unduly restricting the capabilities of any Service or functional component. Never static, airspace control operations may begin prior to combat operations, continue after, and may transition through varying degrees of civil and military authority. The airspace control procedures within the JOA are approved by the joint force commander (JFC) and are [derived entirely from the JFC's authority](#). Airspace control does not infringe on the authority vested in commanders to approve, disapprove, or deny combat operations.

Airspace control is extremely dynamic and situational, but to optimize airspace use, that control should accommodate users with varied technical capabilities. In addition to expected threat levels, the available surveillance, navigation, and communication technical capabilities of both the airspace users and controlling agencies often determine the nature and use of coordination measures (CM). [Airspace coordinating measures](#) (ACM) is one category of a CM. Generally, limited technical capabilities result in increased airspace coordinating measure requirements with an inversely related

decrease in airspace management efficiency. Similarly, higher technical capabilities normally result in decreased airspace coordinating measure requirements and an associated increase in airspace efficiency. Areas with the greatest air traffic congestion and risk of mid-air collisions often correspond to heavily accessed points on the ground (e.g., navigation aids, airports, drop zones, targets, and ground firing systems). Adherence to the JFC's guidance on ACMs should prevent airspace planners from exceeding the JFC's risk tolerance. This integration of ACMs into operations deconflicts airspace usage while decreasing potential friendly fire incidents. Planners should acknowledge these issues and allocate resources accordingly.

Airspace control is essential to accomplishing the JFC's objectives. It allows all users to access needed airspace while preventing conflicts among those competing users. To better organize operational airspace three characterizations exist:

- ★ **Permissive combat airspace:** a low risk exists for US and coalition aircraft operations within the airspace of interest. Operations can expect little to no use of adversary electronic warfare, communications jamming, anti-aircraft systems, or aircraft. Air superiority or air supremacy has been achieved.
 - ★ **Contested combat airspace:** a medium risk exists to US and coalition aircraft within the airspace of interest. Expect the enemy to employ fighters, anti-aircraft systems, and electronic jamming. US and coalition aircraft can achieve localized air superiority for operations within portions of the airspace. Enemy air defense assets are neither fully integrated nor attrited.
 - ★ **Denied-access combat airspace:** a high risk exists for many, but not all, US and coalition aircraft from integrated air defense systems, radars, anti-aircraft systems, electronic warfare, and fighter aircraft. The airspace is characterized by pervasive enemy activity. Expect operations to result in high losses or denial of sustained operations until a measure of air superiority can be achieved.
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